Village power for productivity

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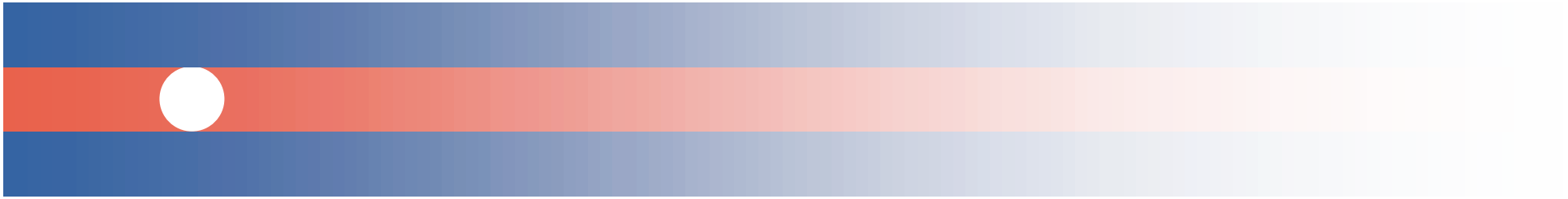

Aims

Village power programs which aim to:

- Self-disseminate rapidly
- Perform reliably over long term
- Provide equitable supply (min 60% per village)
- Provide social and economic improvements

Key solutions

- Business-start business-support approach
- Multi-disciplinary RESCOs/project teams
- Financial incentives for local manager and RESCO.
- Real sales not "help". The lease-purchase discipline.
- Smart or hidden subsidies (soft and hard).
- Individualized management (and ownership) or womens' groups
- Clustering
- Local manufacture/assembly for maintenance
- Business of business-start business-support
- Cross-subsidy at village level (income generation)

Focus on one solution today

- Cross-subsidy at village level (income generation)

One example of solar; one of pico-hydro

Pakhoup village, Lao PDR

Main livelihood fishing.. This income is decreasing.

Animal raising.

Market for produce:
One hour boat trip to main road, half hour vehicle

Solar Electricity in Pakoup

Tariff starts at $1.5/month, rising to $2.5 and up

Weighted subsidy for poor (simple to administer: one component)

Tariff seemed far too high to most people. Includes service charge

Solar: Productive applications

- Charging fishing and hunting batteries (frogs, etc).
- Waterproof covers for fishing to be introduced
- Local manufacture of portable gel battery systems to be introduced (incorporate regulator)

Solar: Productive applications

- Charging fishing/hunting batteries
- Basket work
- Mending fishing nets

Pakoup: Solar weaving

Charging fishing/hunting batteries

- Basket work
- Mending fishing nets
- Weaving

Almost all 50 families with solar weave comercially in evenings when market favorable. Women taking initiative.

Pakoup: Solar weaving

3-5 $/month from evening weaving piece work.

After 5 months the cotton product became less fashionable. Market will swing back.

With credit they can buy materials to make the more fashionable silk sinhs. Earnings are much higher.

Small capacities are enough for productivity

In Pakoup village, 25 houses have 10Wp panels.

- 25 houses have two panels (20Wp).
- After one year of satisfaction, few requests for extra panels (although villagers can afford tariff increase).
- B+W TV is popular, as well as weaving, with these small solar systems

Cost recovery on solar

- 10wp system $140 paid as $1.5 per month for 5 years. Inclusive of batteries $12 to $25. Test so far one year.
- 20Wp system $200 paid as $2.5 per month for five years. Inclusive of batteries $20-$30.
- Subsidy of one 10Wp panel per house in this case. Weighting for poor. But not necessary if I.G. planned in. Soft subsidy still a challenge.

Planning, credit, management

- Lease-purchase contracts work well
- Augmentation/spare part supply designed in
- Contracts also between village manager and families
- All contracts need close prior attention
- Reliability incentive for manager
- Reliability incentive for ESCO

Budgeting for this kind of planning is our challenge. Is this soft subsidy recoverable by RESCOs? I.G.= yes.

How to integrate productivity?

- Credit for handicraft assistance possibly extra 30% above solar credit. Not a problem to find this.
- The investment needed is in prior planning, participation, and some management support to follow.
- Co-ordination with micro-credit schemes. Solar should piggy-back them if possible. Or start with women's weaving groups as the solar clients.

Example of sustainability

$800 for this shawl

Yao womens' group sell their embroideries locally and at bi-annual Vientiane exhibitions

In 1993-7 period a NGO funded travel to exhibitions and helped export. All assistance stopped in 1997 and since then independent local marketing has been successful.

Tapen village

- rice-farming
- bamboo products
- animal raising

Market access:
One hour to main road with large market

Pico-hydro in Tapen

65 houses receive electricity during the night hours.

Tariff is $0.75 per unit (two lamps and radio). Houses have one,two up to eight units (satellite TV – national politics?).

Local manufacture and maintenance. 1.5m head voltage-stabilized propeller

Productive applications

•Rice milling

10kW water-powered rice-mill to be rehabilitated

Management issue (Individual regulated by committee. Ownership incentive, profit incentive, lease or purchase rules).

Productive applications

- Rice milling
- **Carpentry**
- **Paper-making**

Paper-making market good
5 families stopped doing it
due to pulping being arduous
but now turbine offers
chance to restart

Productive applications

- Rice milling
- Carpentry
- Paper-making
- **Refrigerator**

Villagers 2km away at Pah Sy are wealthy boat traders - market for iced sweets, cool drinks, fresh fish and meat

Is IG only valid if you sell to wealthier groups?

Productive applications

- Rice milling
- Carpentry
- Paper-making
- Refrigerator
- **Ice-making**

Ice-making

Neighboring villagers (Pah-Sy etc) buy from town one hour drive away at $0.5 for 10 kg.

Market very secure most of the year. Two year payback in Tapen, very likely better.

A market on the doorstep

IG surely best if you are selling to wealthier groups?

Increasing numbers of villages around the world have access to the tourist market

Culture has a high value. The villages are rich in opportunity.

Look for sustainable output, not quick kill then market fodder. Therefore inputs needed for long-term output (design).

Production during the evening hours

- **Sewing**

Average $5 a month from evening sewing 2-3 hours on only 3 or 4 evenings each month.

Electricity tariff $1.5/month for 3-4 lamps and TV.

Production during the evening hours

- Sewing
- **Basketwork**

50 families work 2-3 hours each evening, most months. Electric lamps increase production and make it easier.
$15-30 per month net family earnings from evening work.
Electricity $1.5/month. Non-subsidized tariff about double this. With I.G., affordable.

Production during the evening hours

- Sewing
- Basketwork
- **Weaving**

At present only 1 weaver is active in Tapen.

A training course is under preparation

Income during the night and day

- Sewing
- Basketwork
- **Battery charging**

- Customers from nearby villages
- Hunting for food with these torches is widespread
- Fuel generators often used to provide the electricity.
- Night and day charging of batteries can bring in significant income.
- Picture from Nampe village, where the electricity is drawn from a a pico-propeller.
- Battery charging also practised in Tapen.

Self-dissemination can be rapid

- Sewing
- Basketwork
- Battery Charging
- **Chicken incubation**

Mr Singh is planning to copy the turbine in a nearby stream and start his own chicken farm using the electric lamps He may make ice too.

Small is necessary. IG works.

- Small generating capacity can go long way. Tapen is running on 2 kW. Pakoup is running half on 10Wp and half on 20Wp. No complaints.
- Small capacities are important to cash-poor communities because they are affordable and manageable.
- Markets exist. Income generation is a normal part of village life.

Village power for productivity

Village power is about villagers starting a village business. Womens' groups are good candidates. Individual leadership works best.

You are investing in the business of helping start businesses

Either piggy-back good income-generation and micro-credit mechanisms, or have them piggy back you.

Or capacity-build your multi-disciplinary team (business-start, solar, fuel, hydro, wind etc) to incorporate a further skill: income expertise (design, marketing, training)

Village power for Productivity

Thank you